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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,952	01/20/2006	Kazuya Tanaka	050246	4301
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KRATZ, QUINTOS & HANSON, LLP			EXAMINER	
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Suite 400			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,952	TANAKA ET AL.	
	Examiner	Art Unit	
	Darcy D. LaClair	4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 14 May 2008.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.
 4a) Of the above claim(s) 1 and 9-14 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 2-8 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) 1-14 are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 19 April 2005 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>1/9/06, 4/19/05</u> .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group (II), Claims 2-8, 13 and 14 in the reply filed on April 15, 2008 is acknowledged. The traversal is on the ground(s) that the claims of Groups I – III do not represent separate and distinct inventions, but rather are different embodiments of a single inventive concept involving combinations containing a lactic acid resin. This is not found persuasive because the inventions listed as groups I – III do not relate to a single general inventive concept under PCT Rule 12.1, because under PCT rule 13.2, they lack the same or corresponding special technical features. The combination of lactic acid resin plus an aliphatic polyester and the combination of lactic acid resin plus an aromatic aliphatic and/or an aliphatic polyester, which link these claims, are shown in the prior art, as taught by EP 1 003 383 and US Patent 5,403,897.
2. The requirement is still deemed proper and is therefore made FINAL.
3. Applicant has indicated belief that these are similar inventions covered under a single inventive concept; however, the examiner provided clear reason why there is no lack of unity and the invention is not directed to a single concept. If applicant wishes to admit on the record that the restricted inventions are obvious variants of the elected group, the Examiner would consider rejoining the restricted groups.
4. Claims 13 and 14 do not relate to the elected group. Claim 13 and 14 are drawn to a molded article formed by injection molding of the resin of claims 9-12, and

subsequent crystallization at a temperature within a range of 60°C to 130°C. Claims 9-12 are non-elected group (III). Claims 7 and 8, drawn to a molded article formed by injection molding of the resin of claim 2, and subsequent crystallization at a temperature within a range of 60°C to 130°C cover the molded articles of the elected group. Claims 13 and 14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. This should include reference to the lactic acid basis of the resin, as well as additional descriptive elements.
6. Appropriate correction is required.

7. The abstract of the disclosure is objected to because it is not clear as to the various components of the resin composition and contains repetition as to the components and their properties. The resin composition as listed contains (A) a lactic acid resin; (B) an aromatic aliphatic polyester and/or an aliphatic polyester, and (B) an aromatic aliphatic polyester and or/an aliphatic polyester. It is unclear whether these are two separate components or a second recitation of the (B) component for the purpose of specifying the content by % weight.
8. Appropriate correction is required.

9. The disclosure is objected to because of the following informalities:
10. In paragraphs 15-17, applicant also overuses the word "further." In addition, in paragraph 1, applicant should use the word "entirety" rather than "entirely." In paragraph 3, "plastics is concerned about" should be replaced with "plastics is of concern." In paragraph 4, the resources are not exhausting, but exhaustible. In paragraph 30, "difficulty to cause bleeding" is unclear. Applicant is asked to review the grammar and word usage in this document.
11. Appropriate correction is required.

Claim Objections

12. Claims 2 is objected to because of the following informalities: The enumeration of the components in the resin uses inconsistent numbering, such that (A) and (B) are used twice and the enumeration is in no particular order (claim 2 reads (A), (B), (A), (C), (B). Appropriate correction is required.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claims 2 and 4-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

15. The language used in the specification is virtually incomprehensible; it is verbose and suffers from a lack of clarity in describing the components of the resin. Applicant is encouraged to define the three apparent components of the resin composition:

- a. (A) a lactic acid based resin
- b. (B) an aromatic aliphatic polyester having a glass transition temperature (Tg) of 0°C or less and a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g **and/or** an aliphatic polyester having a glass transition temperature (Tg) of 0°C or less and a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g
and
- c. (C) an aliphatic polyester not the lactic acid based resin having a glass transition temperature (Tg) of 0°C or less and a heat of crystal melting (ΔH_m) of 50 J/g to 70 J/g

and recite each once, subsequently using the letter assigned to the component. . The language is confusing and onerous, and it is unclear whether several different components are specified, or whether there are simply multiple recitations of the same component. The specification fails to clearly and compactly teach the components of the invention. Applicant is asked to review the specification and in particular,

paragraphs 13-18 and 55-56 where the bulk of these clarity issues are to be found. The description is so confusing that one has no idea what is necessary to make the invention.

16. Claim 2 and 3 are rejected for failing to adequately teach the composition of the resin. Applicant indicates that (A) + (B) are 70% - 90% mass, (C) is 10% - 30% mass, and (B) is 5% - 25% mass. The range of (B) as 5% to 25% mass is unclear, as this could refer to the entire composition, the resin portion of the composition, the total mass of (A) + (B), or some other portion. Applicant teaches that the filler would be within a range of 5 – 20% mass of the resin composition. Is this the percent of the total composition, or an amount added to the resin composition? See paragraphs 13-15, 27, 56.

17. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

18. Claims 2-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

19. The language used in the claims is virtually incomprehensible. These claims are verbose and unclear. Applicant is encouraged to define the three apparent components of the resin composition:

a. (A) a lactic acid based resin

b. (B) an aromatic aliphatic polyester having a glass transition temperature (Tg) of 0°C or less and a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g **and/or** an aliphatic polyester having a glass transition temperature (Tg) of 0°C or less and a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g

and

c. (C) an aliphatic polyester not the lactic acid based resin having a glass transition temperature (Tg) of 0°C or less and a heat of crystal melting (ΔH_m) of 50 J/g to 70 J/g

and recite each and its properties only once with as necessary to claim the invention. In subsequent recitations and claims, the letter assigned to the component could be used to simplify the outlining of the claimed invention. Applicant recites the properties of each component multiple times per claim, making understanding of the claim difficult and onerous. In claim 2, for example, the glass transition temperature and heat of crystal melting of the aromatic aliphatic polyester is recited three times. This does not further limit or define the claim, and compact description would significantly enhance the readability. In addition, the three components of the resin are sequentially grouped in various ways, adding confusion to the claims.

20. Claim 2 and 3 are rejected for failing to distinctly claim the composition of the resin. Applicant indicates that (A) + (B) are 70% - 90% mass, (C) is 10% - 30% mass, and (B) is 5% - 25% mass. It is unclear whether these are based on the entire mass of resin, or some other portion of the composition. In particular, (B) as 5% to 25% mass is particularly unclear, as this could refer to the entire composition, the resin portion of the

composition, the total mass of (A) + (B), or some other portion. Claim 3 teaches that the filler would be within a range of 5 – 20% mass of the resin composition. Is this the percent of the total composition, or an amount added to the resin composition?

21. Claims 2 and 4-6 are rejected based on significant lack of clarity as to the properties of the aliphatic polyester other than the lactic acid based resin. The resin is described as having both a heat of crystal melting of 5 J/g to 30 J/g and of 50 J/g to 70 J/g. Improper antecedent basis and the incomprehensible nature of the claims make it difficult to determine with certainty whether this intends two different aliphatic polyesters or whether it recites a physical impossibility. It is requested that applicant redraft the claims to make them clear and comprehensible. This rejection will be withdrawn if applicant clarifies claim 2 as described above, clearly distinguishing (B) and (C) and clarifying the language.

22. Claims 2, 4-6 are rejected based on the use of the term “aromatic aliphatic polyester.” An aromatic polyester and an aliphatic polyester are exclusive chemicals. If applicant intends a copolymer containing monomers of both aromatic and aliphatic types, then it would be appropriate to use the phrase “aromatic aliphatic polyester copolymer.”

23. This case contains significant lack of clarity. The claims will be examined based on the claims as best understood by the Examiner.

Double Patenting

24. Claims 2, 3, and 6-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of copending Application No. 10/551872. (US 2006/0194899) Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application constitutes a species for which the instant application presents a genus.

25. The instant application claims a resin comprising a lactic acid based resin and an aromatic-aliphatic polyester, further in combination with 5% to 25% of an inorganic filler having a mean particle size of 1 μ m to 5 μ m (claim 3), and 0.1 to 5 mass parts of a hiding agent having a refractive index of 2.0 or more (claim 6). Claim 7 requires a molded object composed of the claimed resin.

26. The copending application '872 requires a lactic acid based resin and 5 to 40 parts of a metal hydroxide, further in combination with an aliphatic or aromatic-aliphatic polyester in ratio of 20 to 80 mass parts (claim 2), and the injection molded object of the lactic acid and metal hydroxide further comprising 1 to 20 parts of an inorganic filler. The claims in the copending application meet the limitations of the instant application with respect to the lactic acid and polyester resin. The hiding agent and the unspecified inorganic filler of the instant application are could both be inorganic fillers, and could also both be metal hydroxides, which constitute some types of fillers with high refractive index (high refractive index being a requirement for an effective hiding agent, see below), as required by the copending application '872.

Table 5.16 Refractive indices of fillers

Refractive index range	Filler (refractive index of a particular group of fillers is given in parentheses)
1	air (1)
1.3-1.49	calcium carbonate - calcite (birefringence: 1.48 & 1.65), cristobalite (1.48), diatomaceous earth (1.42-1.48), fumed silica (1.46), precipitated silica (1.46)
1.5-1.69	aluminum trihydroxide (1.57-1.59), attapulgite (1.57), barium metaborate (1.55-1.6), barium sulfate (1.64), calcium hydroxide (1.57), calcium sulfate (1.52-1.61), feldspar (1.53), glass beads, flakes and fibers (1.51 A-glass and 1.53 E-glass), hydrous calcium silicate (1.55), kaolin (1.56-1.62), magnesium hydroxide (1.56-1.58), mica (1.55-1.69), perlite (1.5), pyrophyllite (1.57), quartz (1.56), talc (1.57-1.59), wollastonite (1.63), zinc borate (1.59)
1.7-1.99	aluminum oxide (1.7), antimony pentoxide (1.7), calcium carbonate - aragonite (1.7), magnesium oxide (1.736), sodium antimonate (1.75), zinc stannate (1.9)
2-2.19	antimony trioxide (2.087), zinc oxide (2)
2.2 and above	barium titanate (2.4), iron oxide (2.94-3.22), titanium dioxide (2.55-2.7), zinc sulfide (2.37)

(Wypych, p. 285)

27. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

28. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

29. Claims 2-4, and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Ebato et al. (US 5,403,897)

30. Claim 2 requires

- (A) a lactic acid based resin,
- (B) an aromatic aliphatic polyester ($T_g < 0^\circ\text{C}$, $\Delta H_m = 5 - 30 \text{ J/g}$) and/or an aliphatic polyester ($T_g < 0^\circ\text{C}$, $\Delta H_m = 5 - 30 \text{ J/g}$), and
- (C) an aliphatic polyester ($T_g < 0^\circ\text{C}$, $\Delta H_m = 50 - 70 \text{ J/g}$).

Components (A) + (B) are 70% - 90%, (B) alone is 5% - 25%, and (C) is 10% - 30%.

31. Ebato teaches a lactic acid based copolyester comprising

- (1) a lactide from 25 to 98 parts by weight
- (2) 1 to 70 parts by weight of a linear aromatic polyester,
- (3) 1 to 70 parts by weight of a linear aliphatic polyester, and
- (4) comprising an aliphatic dicarboxylic acid unit and an aliphatic diol unit in the presence of a ring opening catalyst. (col 3 line 60 – col 4 line 19)

The lactide is a cyclic diester which can be polymerized to polylactide (a lactic acid based polymer). The aliphatic dicarboxylic acid and aliphatic diol would generate a polyester as well. This allows for a composition containing a lactic acid, 2 aliphatic polyesters, and an aromatic-aliphatic polyester with ranges well encompassing applicant's ranges. The polyesters specified for the aliphatic, aromatic, and aromatic/aliphatic polyesters overlap significantly with those presented in the specification of the instant application (col 7 line 54 – col 8 line 22, col 8 line 60-col 9 line 35, col 9 line 58-col 10 line 28). This suggests that the compounds selected for the composition would have similar T_g and ΔH_m properties. In addition, the examples teach polyesters with glass transition temperatures of -2.5°C (Ex. 8), -3.5°C (Ex. 9-12,

15), and -3.2 °C (Ex. 14). This demonstrates clearly that Ebato is using polyesters which are consistent with those required by applicant. The final glass transition temperatures of the compositions indicated in the examples are due to the fact that higher melting points and higher glass transition temperatures are attainable due to the properties of the lactic acid resin, specifically, the poly(lactic acid) moiety having many ester bonds. This will increase the final glass transition temperature and melting point of the composition as a whole. (col 10 line 29-32).

32. Claim 3 requires an inorganic filler having a mean particle size of 1 μm to 5 μm within a range of 5% to 20% mass of the resin composition. Ebato teaches that a generally employed filler may be incorporated, such as inorganic fillers including talc, calcium carbonate, silica, clay, and diatomaceous earth. (col 16 line 43-47) These overlap with specific examples given by applicant in paragraph 60. In col 16, Ebato teaches these specifically with respect to forming a sheet or film, however Ebato additionally teaches that when shaped products other than sheet or film are desired, injection molding may be used without difficulty. (col 17 line 53-56) This indicates that Ebato has fully taught the use of these fillers in a molded composition.

33. Claim 4 requires the resin of claim 2 further comprising 0.5 to 10 mass parts of a carbodiimide. Ebato teaches that the thermal stability of the composition may be improved by the use of a stabilizer including carbodiimide, in a preferred range from 0.1 to 10% by weight based on the amount of the resin. (col 16 line 48-59)

34. Claim 6 requires 0.1 to 5 mass parts of a hiding agent having a refractive index of 2.0 or more. Ebato teaches that a colorant such as titanium oxide or carbon black may

also be added without any particular limitation. (col 17 line 18-19) The refractive index of titanium dioxide, a frequently used pigment (analogous to a hiding agent) is 2.55 – 2.7. (See Table 5.16 provided above from Wypych) This is an inherent property of titanium dioxide.

35. Claim 7 requires a molded article formed by injection molding the resin of claim 2. Ebato teaches that injection molding can be used to form shaped products. (col 17 line 53-56)

36. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Ebato et al. (US 5,403,897) with support from the Sigma-Aldrich Catalog Search Site for molecular weight data. (<http://www.sigmaaldrich.com/catalog/search/AdvancedSearchPage>) and (<http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?sid=24901459>, linked from Sigma-Aldrich Catalog page), the PubChem Substance database.

37. Claim 5 requires the resin of claim 2, further comprising 0.5 to 5 mass parts of an ester compound having a molecular weight of 200 to 2,000. Ebato provides two options for an ester compound within his composition.

a. Ebato teaches that a cyclic ester other than the lactide can be added as a plasticizer. (col 16 line 60 - col 17 line 12) This cyclic ester other than the lactide corresponds to applicant's ester compound. This cyclic ester is not particularly limited, but Ebato provides examples of this ester compound such as dimers of hydroxy acids such as glycolide [MW 116.07] and intramolecular lactides such as ϵ -caprolactone [MW 114.14], γ -valerolactone [MW 100.12], and γ -undecalactone

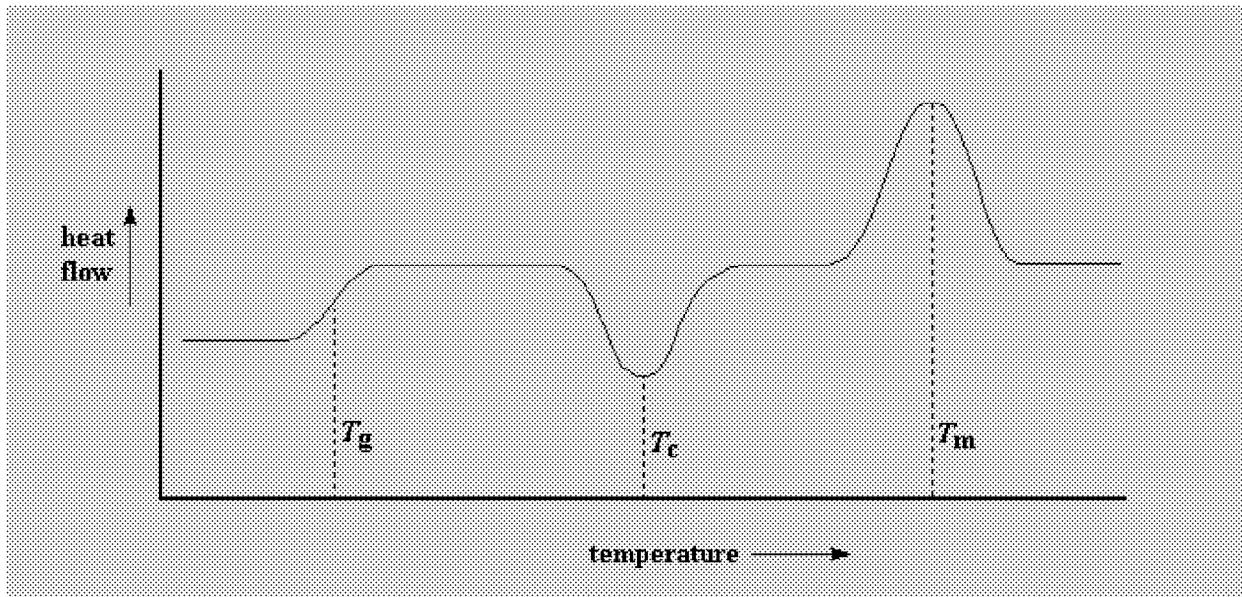
[MW 184.27]. (col 14 line 61-col 15 line 5) Hydroxy acids and intramolecular lactides could easily be condensed to generate higher molecular weight polymers, and the presence of these cyclic esters in Ebato's composition demonstrates that esters of varying weights are compatible with the resin composition as taught.

b. Alternately, Ebato also teaches that 1% to 30% of polyester plasticizers such as dioctyl adipate [Bis (2-ethylhexyl) adipate MW 370.57], dioctyl sebacate, trioctyl trimellitate [MW 546.78], diethyl phthalate [MW 222.24], dioctyl phthalate [MW 390.56], poly(propylene glycol) adipate [MW varies 425-6000], or butanediol adipate may be added to enhance liability and melt moldability. Preferred are those which have weight-average molecular weights of 20,000 or lower. (col 16 line 60 - col 17 line 17) Composed of multiple esters, these compounds also correspond to applicant's ester with a molecular weight of 200 to 2,000.

38. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Ebato et al. (US 5,403,897) with support from the Differential Scanning Calorimetry page (<http://pslc.ws/macrog/dsc.htm>) presented by the Department of Polymer Science at The University of Southern Mississippi.

39. Claim 8 requires that the article formed by injection molding is further crystallized at a temperature within a range of 60°C to 130 °C. Ebato teaches that the mold should be heated at a temperature not lower than the crystallization temperature to actively accelerate crystallization, thereby improving heat resistance. (col 17 line 43-46) The

crystallization temperature is located between T_g , the glass transition temperature, and T_m , the melting temperature. These two temperatures carve out a temperature range in which the polymers of Ebato would be treated in order to conform to the teaching that they should be heated at a temperature not lower than the crystallization temperature.



(<http://pslc.ws/macrog/dsc.htm>)

40. Ebato demonstrates in the examples T_g of 52.7°C , 53.7°C , 50.6°C , 44.2°C , 53.5°C , 32.5°C , 49.1°C , and so on. The T_m demonstrated include 176.5°C , 176.1°C , 147.1°C , 141.2°C , 171.8°C , 97.7°C , 169.2°C , and so on. This determines the boundaries of a range from 32.5°C to 176.5°C for the crystallization temperature. This range covers the entire range required by Ebato.

Claim Rejections - 35 USC § 103

41. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

42. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebato et al. as applied to claim 3 above, and further in view of Wypych (sections included on talc, calcium carbonate, silica, clay, and diatomaceous earth)

43. Claim 3 requires an inorganic filler having a mean particle size of 1 μm to 5 μm within a range of 5% to 20% mass of the resin composition. Ebato teaches that a generally employed filler may be incorporated, such as inorganic fillers including talc, calcium carbonate, silica, clay, and diatomaceous earth. (col 16 line 43-47) Ebato fails to teach a specific size for these particles, or a specific weight percent in the composition. Wypych teaches properties for well known and commonly used fillers.

The following sizes are shown by Wypych for the inorganic fillers taught by Ebato:

Filler	Pages of Wypych	Size (μm)
Talc	150-153	1.4 - 19
Calcium carbonate	48-57	0.3-30 0.2 -0.4 (precipitated)
Silica	131-146	5-40 (fumed) 4-28 (fused) 1-40 (precipitated) 2-19 (quartz)

		2-90 (sand) 2-15 (silica gel)
Clay	75-76	0.4 - 5
Diatomaceous earth	80-83	3.7 - 24.6

As demonstrated by Wypych, the fillers taught by Ebato are typically used in the sizes encompassed by claim 3. In some cases, as with clay and precipitated calcium carbonate, the fillers are not available in larger sizes. In the remainder of cases, the ranges clearly encompass the size required by applicant. Wypych further indicates that the fillers used in the largest quantities have particles in the range of 1 – 10 μm , and that particle size is the one property of a filler that influences every aspect of its use and the success of the application. (p. 245-246) It would therefore be obvious to one of ordinary skill in the art to select a particle size that was appropriate to the application. Particle size and the amount of filler used are also both linearly dependant qualities, which one of ordinary skill in the art would be able to readily alter in order to determine at which point the optimum properties were achieved. Therefore given the general knowledge of fillers, demonstrated by Wypych, and the teachings of Ebato with respect to generating a composition, it would be obvious to arrive at both a particle size and weight percent of filler in the ranges taught by applicant.

Conclusion

44. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

45. Bastioli et al. (US 2002/0188071, also eventually published as US 6,787,613) which teaches a mixture of biodegradable polyesters which includes an aromatic-aliphatic polyester, an aliphatic polyester, and a polylactic acid polymer, in combination with filler, fabricated as a sheet.

46. Bastioli et al. (WO 02/059199, later published as US 2004/0068058 and US 7,067,596), which teaches a mixture of biodegradable polyesters which includes an aromatic-aliphatic polyester, an aliphatic polyester, and a polylactic acid polymer, in combination with filler, fabricated as a sheet.

47. Bigg et al. (US 6,323,307 and its related parent and child applications) which teaches a disposable material which includes a hydroxycarboxylic acid-containing polymer, where lactic acid is a preferred component, with at least one activator compound and at least one plasticizer, in combination with fillers and carbodiimides. The activator and plasticizers can include aliphatic or aromatic polyesters copolymers, and it is within the scope of the embodiment that at least two homopolymers or copolymers can be mixed. A molded article is taught.

48. Edgington et al. (US 5,700,344) which teaches a polyester derived from lactic acid and the manufacture of disposable articles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Thursday 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4171

Darcy D. LaClair
Examiner
Art Unit 4171

/DDL/